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ABSTRACT

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Reading, Culture and Cognition

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READING, CULTURE AND COGNITION

Martin Gill (DAL)

Abstract

A notable feature of current approaches to reading (in first or second language) is a preoccupation with the internal 'causes' of comprehension, regarded as a terminal state of the cognitive system. Yet by allowing only for a private encounter between reader and text, the cognitive approach lacks terms to give more than a contingent account of their participation in a community and history of other texts and other readings. Instead, it reflects the modern myth of the individual as primary social fact and unit of analysis. This paper discusses some of the drawbacks of the cognitive approach, and outlines a more promising, Vygotskyan alternative.

1. The cognitive research programme

1.1 Introduction

A consequence of the 'Cognitive Revolution' in the United States and western Europe, especially since the computer became the root metaphor for information processing in the 1950's (Bruner 1990:6), has been a predisposition among psychologists, and those, including applied linguists, whose disciplines draw on the work of psychologists, to represent mental processes as private computational programmes. Researchers have increasingly adopted the modes of explanation favoured by the cognitive sciences, and framed research questions that invoke them. As a result, the description of human cognitive activity has come to be regarded as largely, if not entirely, synonymous with the modelling of rule-governed procedures internal to the brain, prior to and independent of culturally constructed behaviour. In the case of the study of reading, this has naturally encouraged projects to determine, for example, what occurs 'behind the eye' when a reader understands a text (Goodman 1976), or 'what it means to have understood an utterance in terms of the mental representation that results' (Garrod 1986:226), but has left little scope for the investigation of how the concept of understanding a text might itself vary in relation to historical periods and social and geographical settings, or how a text might affect the life of a reader. Inescapable though such questions may be in many areas of practical concern to teachers, they can hardly be framed within a theory whose interest is in processes supposed to derive from the structural, presumably universal, properties of the human mind. Despite the manifestly cultural origins of reading, therefore, it is usual to find reading models presented as explanatory from which the multitude of its cultural functions are excluded.

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1.2 The aim of this paper

The four premises at the heart of the cognitive approach[1], uniting disciplines (for example, psycholinguistics, artificial intelligence, cognitive psychology) that are in other respects quite disparate, are identified by Williams as:

1 'methodological individualism' - the belief that 'the essential character of [the mind's] inner workings is, ... in certain crucial ways, independent of the individual's relations to other individuals, to social practices, and to environment';

2 'methodological structuralism' - exclusive focus on mature cognitive structure, such that 'learning is modeled on full adult competency';

3 'intellectualism' - 'the idea that all behaviour is to be explained by some prior act of rule-governed cognition';

4 'psychological realism' - the belief that cognitive structures are culturally invariant

(Williams 1989:108-9)

The object of this paper is first to look critically at the consequences for applied linguistics, in particular for the study of reading, that follow from the increasing establishment of these premises as the default assumptions of the discipline, and then to propose an alternative approach to cognition, based on the work of Lev Vygotsky, which can enable reading, along with other language abilities, to be treated as socially situated, socially valued activity.

1.3 The cognitive approach to reading

With the exception of work in the psychometric tradition, whose origins lie in the application of statistical techniques, notably factor analysis, to standardized reading test scores (cf Hewitt 1982), the study of reading has reflected both linguists' accounts of the nature and status of written language, and the large-scale assumptions of learning theory (the former not discussed further here). Since the decline of behaviourism, research both with children learning to read in their mother tongue and with adults reading in a foreign language has concentrated on modelling the specific cognitive processes (word recognition, parsing, semantic interpretation, the conscious or unconscious retrieval of relevant background knowledge, etc.) that are assumed to lead to comprehension, although it has achieved no very clear distinction between comprehending language through the medium of print and reading comprehension as an ability *sui generis* (cf Hill 1988:22). It has been taken for granted, however, that the object of analysis, if not necessarily uniform in its constitution, availability or fluency of operation in given circumstances, is a private, psychologically real property of the individual.

In a recent article, Carrell has offered the following definition of reading comprehension as evidence, from an authoritative source, of the difficulties this subject raises:

> Reading comprehension is considered to be a complex behaviour which involves conscious and unconscious use of various strategies including problem-solving strategies to build a model of the meaning which the

> writer is assumed to have intended. The model is constructed using schematic knowledge structures and the various cue systems which the writer has given (eg words, syntax, macrostructures, social information) to generate hypotheses which are tested using various logical and pragmatic strategies. Most of this model must be inferred, since text can never be fully explicit, and, in general, very little of it is explicit because even the appropriate intensional and extensional meanings of words must be inferred from their context.
>
> (Johnston 1983; cited in Carrell 1991:161)

This text, like many others in the applied linguistics literature, through its choice of imagery signals total commitment to the computational model of human understanding. The nature of reading behaviour, we are invited to believe, is a mystery in just the sense that the functioning of any 'intelligent' system will seem to be a mystery when viewed from outside, when we seek to understand how a complex output derives from various known inputs, themselves complex. Its essence is taken to be the sum of processes executed in a private space between the page and what is often described as the 'click' of comprehension (see, for example, Samuels and Eisenberg 1979:59; Spiro 1980:258), where the graphic display and the reader's existing knowledge interact in unspecified proportions to produce a determinate 'mental representation' (cf Garrod, cited above). Just as the mystery of the intelligent machine's operation will be explained by a complete description of its programme, so, it may be supposed, will the mystery of the reading process, with the added difficulty that in the human case the researcher has to idealize a notion of smooth operation from often defective performance, may introspect about the working of his own reading processes, and must suppose the system he seeks to describe to be more complex than that of any machine imaginable.

It might appear, however, that the development of models in which readers arrive at meaning through the interaction of ('bottom-up') linguistic knowledge with ('top-down') world knowledge, and, in general, increasing emphasis on the role of the latter, differentiate the cognitive approach from the magico-mechanistic determinism implied in the previous paragraph. It is true that, with the rise of interactive models (see, for example, Spiro op. cit.; Carrell et al. 1988), the reader's experience, cultural presuppositions, knowledge of other texts and of textual conventions have all begun to be admitted as independent variables into the account that is given of comprehension, and become the motive for cross-cultural studies (for example, Steffensen and Joag-Dev 1984). Yet while this may be taken as evidence of researchers' growing recognition of the importance of contextual factors as a dimension of reading ability, the focus of interest has remained the dependent psychological variable 'comprehension', in the not wholly differentiated senses of an event in, terminal state of, or output (for example, as a 'mental representation') from the reader's cognitive system. The participation of a text and its reader in a culture and history of other texts and other readings is not considered relevant to the definition of comprehension, but only to the availability of appropriate internal 'knowledge structures' in the individual's cognitive apparatus. Reading research from a cognitive perspective will be concerned with investigating how these structures accommodate new information, the rules by which they operate, and the effects of 'interference' between readers' background knowledge and the knowledge assumed by a text; but it will presuppose no theoretical connection between this culturally specific content and the nature of cognitive structures and rules themselves (cf Williams, op. cit.:109). Thus, once we are sensitive to their

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existence, deficiencies in cultural knowledge might simply be remedied by teaching the missing background information (see Steffensen and Joag-Dev, op. cit.).

One implication of this view is that while there can be no doubt that a medieval reader of Hippocrates or Galen and a modern reader of a medical journal are concerned with divergent kinds of text, possess different world views, different beliefs about the nature of human physiology, the etiology of disease, and so on, belong to societies unlike in structure and in the values they attach to many forms of activity, including medical practice and reading, nonetheless the mental processes in which they are engaged, and the criterion for their successful accomplishment (the 'click' of comprehension) are, in all essential respects, identical, a culturally and historically neutral encounter between their cognitive structures and the text[2].

That this should be so illustrates the tendency for models of reading processes to take on a life of their own, less indebted to the nature of the activity they describe than to the theoretical tradition within which they have arisen. Much continues to depend upon the vagaries of fashion. At the height of the Chomskyan revolution, the willingness of researchers to rely on the power of innate knowledge pushed cultural issues to one side, while the emphasis on internal, genetic causes confirmed the authority of the cognitive perspective. In de Beaugrande's phrase, innateness provided a 'bottomless magician's hat' from which to pull ready-made answers to the problems of linguistic capabilities, no matter how far-fetched they might have seemed from any other point of view (de Beaugrande 1984:10). Not only were linguistic concepts such as the sentence candidates to be regarded as part of a human being's innate faculties (see, for example, McNeill 1970:2, cited in de Beaugrande, ibid.): the same could be proposed even for such sophisticated abilities as reading itself:

> In this as in every higher use of language we might as well admit ... that we are up against a major mystery ... Reading is an art and great readers, like great athletes, may be born and not made ... It seems clear that for reading as for all of the higher level language functions, the human mind must be innately programmed, and the job of the teacher is to activate, not to create, the program.
>
> (Eskey 1979:72)

In his enthusiasm for the genetic programme, Eskey forgets to consider that reading is a 'language function' that has been available (the evidence suggests) only since long after human genetic composition achieved its modern form, and even today only in selected cultural circumstances. He also leaves us to guess what sense should be attached here to the notion of a 'great reader'. Chomsky himself has asked of the claims sometimes made for ape signing whether it is likely that any creatures could be supposed 'really' (genetically) to know how to use language yet never have found it worth their while to do so (Chomsky 1975:40); in the same way, we may wonder how plausible it is to suggest that non-literate societies could be 'innately programmed' for reading without showing the least tendency to adopt literate behaviour of any kind, whatever the individual and societal advantages they might stand to gain from it.

It is precisely the fact that (*pace* Eskey) reading cannot be regarded as either universal or elementary in psychological terms, and cannot be reduced directly to universal mental structures or stimulus-controlled processes or associations, that must cause us to doubt the

value of approaches that set out with explanatory aims from exclusively cognitive premises. For it is only in a context of situated and directed action that the possibility of meaning - and hence of understanding - exists. This line of thought will be developed in the third section of this paper.

2. A critique of cognitive methodology

2.1 The cognitive as 'most basic' discourse

It will be objected that there is no need to quarrel with cognitive approaches to reading or resurrect the nature/nurture debate in latter-day form merely to promote a sociocultural perspective. Language behaviour, including reading, can be treated as either the surface manifestations (or output) of the language-user's private cognitive processes, or as public activity regulated by socially established norms. It is customary to represent both orientations - 'inter-organism' and 'intra-organism' perspectives in Halliday's terms (Halliday 1978:12) - as equally valid, if hardly compatible; we may 'do' sociolinguistics or psycholinguistics, but should not expect simply to translate the central issues of one into terms drawn from the other.

It is true that applied linguistics tends to resolve into the competing discourses associated with these two clusters of activities: interpretative on the one hand, explanatory on the other, the former engaged in the attempt to develop subtle descriptions of language use in diverse cultural and educational settings, the latter with psycholinguistic explanation of the phenomena of language learning, with each side often taking little more than token interest in the work of the other. But although the space between them is not uniform (as it would be if there were a simple continuum between the 'facts' of internal and external worlds), and so is not bridgeable by terms drawn exclusively from either, the rise of cognitivism has brought with it the assumption that the exercise of abilities such as reading or speaking a language is to be understood by relating it to features in an internal cognitive programme, ontologically and ontogenetically prior to the facts of social performance. This, in turn, has ensured that the terms used to specify the cognitive programme acquire the aura of having intrinsic explanatory force, and so prompted striking efforts to reduce the description of the social phenomena of language use to the cognitive structures of language knowledge, most notably in the debate over the scope of the terms 'competence' and 'performance' (for a critical review of this literature see D. Taylor 1988). While it might be maintained that 'competence' phenomena only represent idealizations away from the flawed reality of everyday behaviour, no less necessary, if it is to be studied systematically, than are the idealizations of a descriptive grammar, the clear implication is that they represent properties or entities 'in' the mind more basic than observable behaviour, a set of facts about the basis of mental life that serve to make the facts of observable behaviour true (cf Putnam 1981:56).

In pursuit of psychological explanation, researchers are thus induced to look inwards to the sanitized models of readers' text processing systems, etc., rather than outwards to the nature of socially constructed activity. Indeed, work in the cognitive approach has little to say about the concepts usually taken for granted in everyday accounts of human behaviour, such as beliefs, intentions, actions, ideas, consciousness, and so on, for concepts of this kind, clouded with social meanings, are not obviously reducible to a universal, structural description of mental processes, and so (from a cognitive point of view) cannot be

regarded as their cause (cf Bruner op. cit.:8). Sustaining this line of thought, moreover, is a popular conception of the relationship between the constitutive factors in human life, inherited from the 19th-century, which Geertz terms 'stratigraphic' (Geertz, 1975:37): a view of the agent as an organism separated into different levels (whose 'reality' is underwritten by the existence of each as an autonomous academic discipline), in which the biological, as most basic, underlies the psychological, and cultural diversity appears as the shallowest level, colourfully visible but of no more than slight explanatory significance.

In consequence, notions of reading as constituted by a community, and as purposeful activity (purpose necessarily implying a relation to the social environment), or of meanings not 'in the head' but communally available through participation in the language and the culture, do not figure in cognitive accounts. Yet in ignoring the everyday terms used to account for the behaviour of rational agents, the cognitive approach could be said to show a spirit analogous to that in which the logical positivists earlier in the century relegated metaphysical (i.e. non-verifiable) statements to 'the rubbish heap of the nonsensical' (Ayer 1985:130), and thereby ruled out the greater part of human utterances. Nor is there much to distinguish the terminology of information processing, input, output, and feedback from the behaviourist notions of stimulus, response and reinforcement (Bruner, op. cit.:7; C. Taylor 1985:5): merely that, in place of the behaviourist denial of mind, we are now faced with a cognitivist denial of meaning. Thus, comprehending a text is taken to be a matter of privately reconstructing its message, for example by forming the 'mental representation' that may be supposed to have been in the mind of its writer, despite the profound difficulties that attach to treating comprehension as the final outcome of any sequence of cognitive operations (whether beginning with perception, or with the reader's knowledge of the world, or in some combination of the two)[3].

Development of the view that understanding (including the understanding of books) is not the context-free possession of a 'message', representation, or similar cognitive entity, but an ability to act, framed in a context defined by the activities of the community, clearly requires as framework another, less restrictive or 'internal' notion of cognition; and this will make headway only to the extent that the present notion is seen to be wanting.

2.2 The prevalence of metaphor

Infiltration of cognitive language into every corner of research discourse both reflects and consolidates its hold on habits of thought in the research community. Its metaphors are now established in branches of applied linguistics where (on any view) they are irrelevant: speakers rarely remember words, for example, they retrieve items stored in their mental lexicons; rather than know about a subject they activate schemata; instead of hearing or reading a foreign language they are exposed to input; a learner's reading difficulties may be caused by bugs in his processing routine, and so on, sometimes imaginatively. At first sight, such expressions may appear to be no more than the harmless shared terms of a certain discourse community, the 'familiar between-us hum' of specialist speech (Geertz 1988:58), used both for convenience and to promote the continuity and self-esteem of applied linguistics research (showing it to belong to the mainstream cognitive science enterprise); but their ubiquity reconfirms both the computer as the chief source of the field's explanatory concepts, and the causal/psychological as the mode of discourse which serves to ground all others. As Rodger has argued in a discussion of the metaphors of switches and triggers in 'parameter setting' studies in SLA, such metaphors, with their

implication of mechanical causes, processes, etc. are all too easily simplified into literal representations of mental events, with direct consequences for the aims of research and pedagogy (see Rodger 1990, esp. 20-22).

2.3 The role of scientific method

A belief that the natural sciences provide an appropriate model for the study of man, and that adopting a scientific approach means, in essence, reducing all explanations to mechanical ones, continues to enjoy a large measure of prestige in the human sciences (cf C. Taylor 1985:169). And as long as research attention remains focussed on isolated, ahistorical interactions between (for example) 'the learner' and 'the text', 'input' and 'the language faculty', and so on, this belief is unlikely to be seriously challenged in applied linguistics, notwithstanding the mysteries (like that of the true nature of 'competence' and 'performance'), themselves now institutionalized as the *causes célèbres* of the discipline, for which it is directly responsible. On the contrary, if such entities are thought to be inscribed or encoded in the mental structure of the individual language user, the appropriate explanatory procedure will be to find ways to uncover them, to explain how they arose in the mind, and to formulate their specific rules and procedures (cf Chomsky 1988:3).

This naturally suggests a role for experimental research, and the development of techniques to probe the hidden space of mental operations. In this way, the reification of cognitive terms is reinforced by the authority of the experimental method. It is not simply that experiments now and then throw up 'significant' or 'highly significant' results which may too readily be assumed to be the indices of unseen, presumably cognitive, processes (cf Carver 1978; Morrison and Henkel 1970) - although it is relevant to note Hewitt's criticism of the tendency of quasi-experimental designs to falsify complex behaviour by manipulating only a small number of variables in isolation and by making use of small samples under conditions that fail to generalize to normal behaviour (Hewitt, op. cit.:13-15). The point is rather that empirical research too presents itself as a 'most basic' discourse, grounded in a world of transparent fact, where it is aligned with the physicist's project to establish the invariable laws of nature, and insulated against 'contamination' from such apparently contingent factors as cultural variation (cf de Castell, Luke and Egan 1986:7). One consequence of this is that cognitive experiments look for unmediated changes in learners, for example, for 'input' to lead to 'acquisition' as it were by the operation of an invisible cause on an invisible mechanism, but take no account of change in cognitive potential mediated by educational means (a question discussed further in section 3 below). Since, moreover, the form of these experimental procedures corresponds to the popular expectation of objective scientific enquiry, their claims are likely to seem more intrinsically justifiable than epistemological doubts about the status or usefulness of their objects.

The arguments advanced here are not meant to suggest that understanding, reading, etc. involve no mental activity, or that such activity may not be a legitimate object for research. However, while hypotheses concerning it may arise in the description of the brain, its properties and malfunctions, they are largely irrelevant to the attempt to discover what understanding, or any other linguistic behaviour 'really' is: analyzing behaviour into constituent processes, etc., entails nothing with respect to its purposes or consequences,

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which are, instead, framed in the social world; it is, likewise, social norms which determine the meaning of the terms used to describe it.

As long as we fail to grasp this clearly, there is a danger that the mystery of reading comprehension, like that of human language ability in general, will remain a mystery of our own making. Too often, Wittgenstein observed, 'we interpret the enigma created by our misunderstanding as the enigma of an incomprehensible process' (Wittgenstein 1974:155; cf Baker and Hacker 1984:346; Hilmy 1987:224-5), and adopt inappropriate empirical/analytical means to resolve it. The mystery implied when Eskey opens his discussion by announcing that 'no one knows exactly what reading is ... despite a library-sized bibliography devoted to reading and the teaching of reading' (op. cit.:68); or when Clarke claims that 'reading is perhaps the most thoroughly studied and least understood process in education today' (Clarke 1988:114), derives not from the nature of reading but from a misleading idea of what we should count as appropriate explanation in this case, 'a [conceptual] muddle ... felt as a [scientific] problem' (Wittgenstein, cited in Hilmy, op. cit.:225). The difficulty is that on the whole it is easier to 'explain' behavioural phenomena (albeit circularly) by postulating hidden mental processes of the kind Wittgenstein had in mind, than (as is required) to rethink the categories by means of which the phenomena are described.

2.4 Truth versus relativism

In certain fields of the human sciences (notably ethnography, sociology, and literary theory) there is a growing self-consciousness about how research represents its objects, and the authority, political as well as epistemic, of the discourse in which such representation is situated (see, for example, Geertz 1975; Clifford and Marcus 1986; Duncan 1991). Yet in contrast to these disciplines, in which critiques of this kind are now commonplace, and which increasingly regard their object not as the attainment of disengaged truth but as the reading of a cultural text in a specific milieu and its translation into (or re-creation in) another, such questions have as yet scarcely surfaced in applied linguistics, committed, as in large part it remains, to the discovery of cognitive universals that are (biologically) true 'in themselves'. Here we find the possibility of cultural difference admitted only as 'parametric variation' in underlying principles, and any more radical account regarded with suspicion as a slide into a free-for-all relativism antipathetic to the scientific method. That the relativizing of world views, explanatory categories, etc., does not imply unlimited freedom of choice, or pose any threat to stability of agreement, or reliable attribution of meaning, is, however, clear from the difficulty we have in detaching ourselves from the conventions of our own dominant - notably literate - habits of thought (those of empirical science, for example). As Fish notes:

> Some institutions or forms of life are so widely lived in that for a great many people the meanings they enable seem 'naturally' available and it takes special effort to see that they are the product of circumstances.
>
> (Fish 1980:309)

Since the specialisms of applied linguistics largely adhere to the conceptual divisions defined by the cognitive sciences, it has become all too easy for practitioners with little interest in trying to cross them to behave as if institutional facts merely followed the contours of nature, as if what differentiated psycholinguistics from sociolinguistics, the

domain of the individual from that of the social, the laboratory from the field, etc. (see Cole 1985:147, table 1), were features inherent in their objects of study, rather than in their modes of analysis and forms of discourse.

2.5 Individualism

The cognitive programme owes much of its success to the deep-rooted cultural (and political) commitment in western thought to methodological individualism (Williams' point 1 in section 1.2 above): to the inviolable privacy of the individual's experience, sense of self and mapping of the world. In Charles Taylor's view, it is this, above all, that accounts for the survival of the computational model's implausible denial of the normal language of rational activity. As he puts it:

> The ideal of disengagement [of consciousness from the world, of the individual from society] defines a certain - typically modern - notion of freedom, as the ability to act on one's own, without outside interference or subordination to outside authority.
>
> (Taylor 1985:5)

Likewise, Bruner observes: 'The notion of the "private" Self free of cultural definition is part of the stance inherent in our Western conception of Self' (Bruner 1986:68); a stance which, as he points out elsewhere, results in the too frequent depiction of human learning

> in the paradigm of a lone organism pitted against nature - whether in the model of the behaviourist's organism shaping up responses to fit the geometries and probabilities of the world of stimuli, or in the Piagetian model where a lone child struggles single-handed to strike some equilibrium between assimilating the world to himself or himself to the world.
>
> (Bruner 1985:25)

In the case of language learning, exposure theories divorce the process of learning from socially created, socially situated forms of education by representing the lone organism in a world of linguistic stimuli. More generally, as noted in section 1.3 above, cognitive premises force a separation between cognitive structures and their contents: schemata, lexicon, etc. contain culturally specific facts, items of information about the world, and so on: but there is no suggestion that this knowledge itself can affect the structure or development of thinking, remembering, linguistic ability (etc.), or attempt to understand how together they might constitute an individual's developing consciousness. Instead, it falls to learners' genetic programmes to determine the stages of their development, under the influence, it may be, of 'triggering' events in the external world, evidence for which will, circularly, diminish still further the need to reckon with the influence of human, cultural mediation.

On the other hand, without a genetic programme of some kind, the cognitive approach offers no clear reason for transition between its successive static structures (cf Spiro, op. cit.:270-1). Learning itself exerts no pressure on development: it is merely a linear accumulation of the elements of adult competence, from which, by backward projection, its nature is derived (Williams' point 2 above; cf also D. Taylor 1988:162). There is thus

no place for the supposition that the process of learning might itself shape the nature of development, that each stage is made possible by the nature of what has preceded it and that cognitive potential might depend critically on the incorporation of external, culturally elaborated forms of behaviour (not least the ability to read and write) into the learners' cognitive organization, setting up new relations within it and new directions for its future course.

2.6 Cultural difference

In education generally, the cognitive approach has had a substantial influence on the conceptualization of learning processes and difficulties, not least those associated (particularly in north America) with bilingualism and its consequences, the abilities of children from minority ethnic groups, and the relevance to them of instruction in the mother tongue as opposed to the second (or majority) language (see, for example, Romaine 1989). It is in this context that its political dimensions - in essence, the questions: 'Whose competence?', 'Whose reading ability?' - have become inescapable. Romaine observes, for example:

> Much of the terminology [used to discuss bilingualism] reflects the ideological bias of a linguistic theory which has been concerned primarily with the idealized competence of monolingual speakers in the speech communities of western Europe and the United States: communities which, on the whole, have a high degree of stability, autonomy and historicity, and possess highly codified standard languages and prescriptive traditions.
>
> (Romaine 1989:251)

The cognitive approach has elevated the cultural norms of western tradition to the status of a biologically determined mental structure, so that, even in the act of affirming the universality of mental functions as a measure of human equality, it risks finding itself aligned with a supremacist tradition that treats difference as deviance, and non-western cultural forms of behaviour as indices of deficiency, etc. Harris, too, points to the high level of linguistic conformity (hence authority) that is necessary for the Chomskyan symbiosis of linguistic and mechanical models (Harris 1987:75; 122). It is perhaps not accidental that the ideology of the 'Melting Pot' should find attractive the myth of the cognitive machine.

3. Framing an alternative

3.1 Basic requirements

It is clear that the promotion of an alternative approach to human cognitive activity will have both to overcome institutional inertia, and to question the premises that underlie a research programme by now confidently established as the 'normal science' of the discipline (cf Kuhn 1970), with a vast investment of academic capital and a virtual monopoly on research problems, hypotheses and methodology. It is clear, also, that questioning the priorities of cognitivism is likely, by definition, to seem aberrant or unscientific; in short, that the effort required is likely to deter even those who sense the need for it.

It is true that in some quarters there has already been acknowledgement of the damaging consequences of unreflecting cognitivism. Widdowson, for example, has asserted that 'individuality is itself a cultural concept: there can be no private independent real person dissociated from the cultural values which define the society in which the individual lives' (Widdowson 1990:13), and has pointed to the dangers of uncritically accepting an idea like Krashen's Monitor Model, which can so readily be regarded as a solution 'assumed to be valid anywhere, like American Express traveller's cheques' (ibid. :25). Likewise, in his critique of research in reading comprehension, Hewitt calls for research

> to take account of the social, cultural and political contexts in which [comprehension] occurs, and how these influences affect how readers approach texts, their attitudes to reading, their comprehension of texts and the effects their reading has on them.
>
> (Hewitt, op. cit.:19)

However, as this discussion has sought to show, it is a forlorn hope to require sensitivity of this kind, without also developing an alternative to the ascendant cognitive ideology. It is by no means adequate or admissible simply to add in culture to psychological mechanisms: to suppose, for example, that context merely modifies the properties of reading that are laid down by a pre-existing internal programme. What is needed is a model of the individual language user (and so, of the learner, the reader, and so on) that is as subtle as the model of language use we presently possess, to escape from the paradoxical state of affairs in which communication is conceived of as a complex, culturally constructed activity, which nonetheless takes place between 'atomic' individuals, whose development is biologically programmed, self-sufficient and prior to surface variation.

3.2 Cultural mediation

The work of the Soviet psychologist Lev Vygotsky and his followers offers a basis on which to construct a model of the desired kind (see particularly Vygotsky 1978, 1986; also Wertsch (ed.) 1985): a non-stratigraphic, culturally informed approach to the analysis of human behaviour that enables comprehension (etc.) to be represented not as the product of a unique and mysterious set of internal operations, but as dynamic and inseparable from a larger context of socially understood activity. In contrast to western traditions in psychology, their approach begins from the recognition that the individual is, first of all, socially formed; or, more accurately, that society and the individual constitute each other

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in a single dynamic system (Cole 1985:148); a view that is echoed by the philosopher Charles Taylor:

> the community is not simply an aggregation of individuals; nor is there simply a causal interaction between the two. The community is also constitutive of the individual, in the sense that the self-interpretations which define him are drawn from the interchange which the community carries on.
>
> (C. Taylor, op. cit.:8)

The constitutive role of culture in human phylogeny has been persuasively argued for by the anthropologist Clifford Geertz (Geertz 1975, ch. 2). Since, he maintains, the evidence makes clear that the interaction of man's biological capacities with the socially defined environment has taken place from the very earliest times, it is impossible to point to any moment of transition - 'some mental Rubicon' (ibid.:47) - from natural evolution to the possession of culture, from genetic to historical development (a transition presupposed by stratigraphic models). Instead, emerging patterns of culture themselves shaped the world to which man required to adapt, so that (for example) increasing use of tools, the changing configuration of the hand and the expansion of the cortex must be seen as inseparable and mutually reinforcing processes (ibid.:48). In this sense, culture is inescapably part of what humans beings are, a basic condition of their existence. Geertz notes that one of the most striking differences between the new-born offspring of human beings and those of less complex organisms is the incompleteness with which the central nervous system of the former is able to determine its behaviour (ibid.:75), suggesting that increased autonomy and complexity of nervous system activity go together with a diminution in the degree of intrinsic, structural control it is able to exert (ibid.:76), a deficiency in genetic wiring that is supplied by cultural resources. These resources must therefore be regarded as basic constituents of mental activity. 'Like the cabbage it so much resembles, the *Homo sapiens* brain, having arisen within the framework of human culture, would not be viable outside of it' (ibid.:68)

One such resource that Geertz singles out is the use of systems of significant symbols - culture, he suggests, is the totality of such systems (ibid.:46) - that mediate between our genetic capacities and our precise behaviour (smiling enigmatically, speaking in a certain tone of voice, building cathedrals, etc.). Vygotsky's research programme sought to pursue the implications of a similar line of thought in ontogeny; and, in particular, to establish how the complex and specifically human 'higher psychological processes' develop from elementary biological ones, to which, in the face of behaviourist orthodoxy, he maintained they could not be reduced (see, for example, Vygotsky 1978, esp. ch. 6; Davydov & Radzikhovskii 1985:59). In his view, the transition is mediated by cultural forms, above all those of language, which the child encounters in social interaction (first of all with parents and siblings) and, in the course of development, internalizes. Just as for Geertz no sense can attach to the notion of man without culture, so for Vygotsky there is no such thing as individual psychology independent of social context, for it is there that psychological functions first appear: 'the true direction of the development of thinking is not from the individual to the social, but from the social to the individual' (Vygotsky 1986:36). Growing to psychological maturity means, in effect, learning to use the set of historically and contextually specific 'tools for thought' made available through the culture. And, like the use of tools in phylogenetic development, it is this that enables the individual to progress in exponential steps beyond his bare biological initial conditions.

3.3 Learning

This model of the individual dissolves the boundary, drawn by behaviourist and conventional cognitive psychology alike, between the domains of mental and social activity ('separating what I can consult in my head from what I can consult in my diary' (Goody 1987:219)). Moreover, it shifts attention from attempts to discover the sequence of learners' unaided and unmotivated acquisition of adult competence to the content and context of the education they receive.

The distinctive feature of Vygotsky's approach to education, not only theoretically but with regard to practical pedagogy, is the dynamic it assumes between learning content and developmental process. Development does not run more or less smoothly along biological tram-lines. It is conceived of rather as a process that is itself subject to change (Vygotsky op. cit.:94; cf Wertsch 1985:20), and 'learning-led' rather than 'development-led'; that is, there exists space within the capacities of the child for problem-solving under 'expert' guidance to extend and transform the nature of the capacities themselves:

> Properly organized learning results in mental development and sets in motion a variety of developmental processes that would be impossible apart from learning. Thus, learning is a necessary and universal aspect of the process of developing culturally organized, specifically human, psychological functions.
>
> (Vygotsky, 1978:90)

The distance between (biological) development and the potential level of attainment under tuition, the space in which 'good' learning can occur, is what Vygotsky termed the 'zone of proximal development' (ibid.:84). It is here that the process of acculturation takes place through the interaction of adult with child (expert with novice, etc.), and the means are transmitted that enable the learner to abstract and operate with decontextualized concepts: first, linguistic signs and later, particularly in formal education, symbolic systems such as writing. It is central to the Vygotskyan argument that these symbolic systems are 'already in place, already "there," deeply entrenched in the culture and language' (Bruner 1990:11; cf Wertsch, op. cit.:80), and that being educated into their use unavoidably makes the learner a reflection of that culture.

3.4 Literacy and reading research

Literacy is among the most basic of psychological tools. Becoming literate can extend the capacities of the naked brain, not by changing its inherent properties (which are, perhaps, minimal; cf Geertz's view, above), or by conferring on it the imagined superiority of 'technological' over 'primitive' modes of thought (or any other version of what Goody has called 'the ethnocentric binarism enshrined in our own categories' (Goody 1977:8), but, instead, by supplying a prosthetic device 'by which human beings can exceed or even redefine the "natural limits" of human functioning' (Bruner, op. cit:20-21). These redefinitions, moreover, in the form of the written record and its exegesis, scientific theory, and so on, in their turn enter and shape the patterns and institutions of communal life in constant, open-ended exchange.

The advantage of adopting a Vygotskyan approach, presented here only in bare outline, is that cognition will cease to be treated as the operation of an internal programme, but

designate instead an activity with a temporal and geographical location; thus, it will not be necessary to maintain that the reading of ancient and modern medical texts in the example above (in section 1.3) is 'the same' in any significant sense, but nor will the alternative be a chaos of purely subjective interpretations. Moreover, development will be identifiable not with the extension of mental structures and the accumulation of their contents, but with learning how to act in ways to which the socially regulated notions of purpose, intention, etc. may be attached. As a stimulus for research, this will imply that reading should first be investigated as a product of, and an active constituent in, its many contexts. The notion of 'appropriate reading' will be given by cultural criteria which define, for a given community, what are the normal forms of behaviour with texts. To understand reading in any context, it will be necessary to establish what functions it has for readers, and what roles reading confers on them. Fictions, such as the private 'click' of comprehension, or unmediated cognitive change, will then be displaced by assessment, answerable by reference to public norms, of the extent to which a reader can learn to make appropriate use of a text, at various levels of specificity.

4. Conclusion

It would be wrong to give the impression that there are not difficulties to be faced in the cultural model; use of the term 'culture' itself recalls Goody's remark about the 'conceptual slush' into which analysis flounders on the introduction to it of supposedly basic or explanatory terms 'which themselves need explaining rather than serve to explain' (Goody 1977:46). 'Culture' is not more intrinsically explanatory than the cognitive terms it is invoked to replace, but it is intended here merely to indicate the kinds of facts that will be material to further discussion, and not to designate a specific or necessarily tidy entity.

On the other hand, talk of the mechanisms that operate in sequence up to the 'click' of comprehension, or that are acted on by exposure to language, silences speculation and inhibits understanding by bringing us up against incomprehensible mental processes of the kind to which Wittgenstein referred. The assumption that it is to the function of these mechanisms that we must look for the criteria for our being said to understand a text, or for a theoretical model of language learning, etc. is a tendency ingrained in the models and methods discussed in this paper, and at present widespread in applied linguistics.

Viewed from the perspective developed here, it is not intelligible to speak of 'the reader' or 'the text' as if statements about them exhausted the enquiry. Thinking, learning, language use, etc. cannot be detached from the matrix of cultural and social practices in which they develop, or added in as structural refinements to a model of 'underlying' universal, ahistorical processes. They are, rather, mediated and structured by forms of human activity in the world such that both culture and cognition are strictly inconceivable without each other. It will therefore be necessary to introduce into any description of human cognitive functions and their development factors not latent or genetically wired into the brain, but already given in the culture. One clear benefit this will bring will be a shift of attention from the thin notions of learning current in the SLA-orientated approaches of applied linguistics, to one capable of connecting with a broader theory of education in a way that is potentially of great pedagogic value.

Notes

1. In this discussion, 'cognitive approach' and the adjective 'cognitivist' are used to designate the commitments, priorities and modes of explanation characteristic of a research programme, rather than the beliefs of a particular group of individuals. Researchers who participate in the programme will, of course differ with respect to the extent to which they accept the strongest versions of its premises.

2. O'Keefe makes the point that information processing models of reading take the print conventions of modern English for granted, as if they were transparent features of reading, rather than historically variable formations (see O'Keefe) 1990:17).

3. The analysis of these difficulties constitutes an important strand of thought in Wittgenstein's Philosophical Investigations (1953); his views are helpfully discussed by Baker and Hacker (1980, esp. 331ff). See also Putnam 1981:19ff.

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